

IN THE CLAIMS:

This listing of the claims replaces all prior versions and listings of the claims in this application.

The text of all pending claims (including any withdrawn claims) is set forth below. Canceled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~striketrough~~. The status of each claim is indicated with one of (Original), (Currently amended), (Canceled), (Withdrawn), (Previously presented), (New), and (Not entered).

Please AMEND claims 1, 69, and 70 and ADD new claims 71-74 in accordance with the following:

1. (Currently amended) An interactive digital content reproducing apparatus to reproduce interactive digital content, the interactive digital content reproducing apparatus comprising:

a data storage unit, the data storage unit comprising a non-volatile data storage portion;

a retrieving unit to retrieve interactive digital content, the interactive digital content comprising:

audio/video (AV) data; and

a markup document supporting an interactive function for reproducing the AV data and comprising a command program, the command program comprising a cookie generation command program;

a presentation engine comprising:

a parser to:

receive the interactive digital content from the retrieving unit; and

verify a syntax of the markup document of the interactive digital content;

~~content~~;

a document object model (DOM) tree forming unit to:

receive the markup document from the parser; and

extract the command program from the markup document by interpreting a structure of the markup document; and

an interpreter to receive the command program from the DOM tree forming unit;

wherein the interpreter executes the cookie generation command program of the command program to:

generate a cookie comprising:

cookie data to be used by the interactive digital content reproducing apparatus in a subsequent interactive digital content reproducing operation performed in the interactive digital content reproducing apparatus; and

a domain attribute identifying the interactive digital content reproducing apparatus as a domain; and

store the cookie in the non-volatile data storage portion of the data storage unit.

2. (Previously presented) The interactive digital content reproducing apparatus of claim 1, wherein the retrieving unit comprises a reading unit to read the interactive digital content from a storage medium.

3. (Previously presented) The interactive digital content reproducing apparatus of claim 1, wherein the cookie generation command program is written in a script language.

4.–5. (Canceled)

6. (Previously presented) The interactive digital content reproducing apparatus of claim 1, wherein the cookie further comprises content identification information identifying the interactive digital content retrieved by the retrieving unit.

7. (Previously presented) The interactive digital content reproducing apparatus of claim 6, wherein the command program of the markup document further comprises a cookie reference command program; and

wherein the interpreter executes the cookie reference command program of the command program to:

search the data storage unit for a cookie having a desired content identification information; and

extract cookie data from any cookie having the desired content identification information that is found in the search.

8. (Previously presented) The interactive digital content reproducing apparatus of claim 1, further comprising a decoder to decode the AV data;

wherein the cookie data comprises a state of a system variable of the interactive digital content reproducing apparatus obtained from the decoder by the interpreter under control of the cookie generation command program.

9. (Previously presented) The interactive digital content reproducing apparatus of claim 1, wherein the cookie data comprises data obtained from the markup document by the interpreter under control of the cookie generation command program.

10. (Previously presented) The interactive digital content reproducing apparatus of claim 1, wherein the cookie data comprises data input by a user of the interactive digital content reproducing apparatus.

11. (Previously presented) The interactive digital content reproducing apparatus of claim 1, wherein the command program of the markup document further comprises a cookie reference command program; and

wherein the interpreter executes the cookie reference command program of the command program to:

search the data storage unit for a desired cookie; and

extract cookie data from the desired cookie if the desired cookie is found in the search.

12. (Previously presented) The interactive digital content reproducing apparatus of claim 1, wherein the command program of the markup document further comprises a cookie deletion command program; and

wherein the interpreter executes the cookie deletion command program of the command program to:

search the data storage unit for a cookie to be deleted; and

delete the cookie to be deleted if the cookie to be deleted is found in the search.

13. (Previously presented) The interactive digital content reproducing apparatus of claim 1, wherein the cookie further comprises a path attribute identifying a path for which the cookie data is effective; and

wherein the cookie data comprises:

a name of the cookie data; and

a value of the cookie data.

14. (Canceled)

15. (Previously presented) The interactive digital content reproducing apparatus of claim 6, wherein the cookie further comprises a path attribute identifying a path for which the cookie data is effective; and

wherein the cookie data comprises:

a name of the cookie data; and

a value of the cookie data.

16. (Previously presented) The interactive digital content reproducing apparatus of claim 7, wherein the cookie further comprises a path attribute identifying a path for which the cookie data is effective; and

wherein the cookie data comprises:

a name of the cookie data; and

a value of the cookie data.

17. (Previously presented) The interactive digital content reproducing apparatus of claim 8, wherein the cookie further comprises a path attribute identifying a path for which the cookie data is effective; and

wherein the cookie data comprises:

a name of the cookie data; and

a value of the cookie data.

18. (Previously presented) The interactive digital content reproducing apparatus of claim 9, wherein the cookie further comprises a path attribute identifying a path for which the cookie data is effective; and

wherein the cookie data comprises:

- a name of the cookie data; and
- a value of the cookie data.

19. (Previously presented) The interactive digital content reproducing apparatus of claim 10, wherein the cookie further comprises a path attribute identifying a path for which the cookie data is effective; and

wherein the cookie data comprises:

- a name of the cookie data; and
- a value of the cookie data.

20. (Previously presented) The interactive digital content reproducing apparatus of claim 11, wherein the cookie further comprises a path attribute identifying a path for which the cookie data is effective; and

wherein the cookie data comprises:

- a name of the cookie data; and
- a value of the cookie data.

21. (Previously presented) The interactive digital content reproducing apparatus of claim 12, wherein the cookie further comprises a path attribute identifying a path for which the cookie data is effective; and

wherein the cookie data comprises:

- a name of the cookie data; and
- a value of the cookie data.

22. (Previously presented) The interactive digital content reproducing apparatus of claim 1, wherein the cookie further comprises an expires attribute defining a duration of the cookie.

23. (Previously presented) The interactive digital content reproducing apparatus of claim 13, wherein in storing the cookie, the interpreter overwrites, with the cookie being stored, any cookie stored in the non-volatile data storage portion of the data storage unit that has a same domain attribute as the cookie being stored, a same path attribute as the cookie being stored, and a same name of the cookie data as the cookie being stored.

24. (Previously presented) The interactive digital content reproducing apparatus of claim 11, wherein the cookie further comprises content identification identifying the interactive digital content retrieved by the retrieving unit;

wherein the interpreter searches the data storage unit for the desired cookie by searching the data storage unit for a cookie having a desired content identification information; and

wherein the interpreter extracts the cookie data from the desired cookie by extracting cookie data from any cookie having the desired content identification that is found in the search.

25. (Previously presented) The interactive digital content reproducing apparatus of claim 11, wherein the cookie data comprises;

a name of the cookie data; and

a value of the cookie data; and

wherein the interpreter searches the data storage unit for the desired cookie by searching the data storage unit for a cookie having a same name of the cookie data as the desired cookie.

26–51. (Canceled)

52. (Previously presented) An information storage medium comprising interactive digital content for reproduction in an interactive digital content reproducing apparatus, the interactive digital content reproducing apparatus comprising a data storage unit, the data storage unit comprising a non-volatile data storage portion;

wherein the interactive digital content of the information storage medium comprises:

audio/video (AV) data; and

a markup document supporting an interactive function for reproducing the AV data and comprising a cookie generation command program;

wherein the cookie generation command program controls the interactive digital content reproducing apparatus to:

generate a cookie comprising:

cookie data to be used by the interactive digital content reproducing apparatus in a subsequent interactive digital content reproducing operation performed in the interactive digital content reproducing apparatus; and

a domain attribute identifying the interactive digital content reproducing apparatus as a domain; and

store the cookie in the non-volatile data storage portion of the data storage unit.

53. (Previously presented) The information storage medium of claim 52, wherein the cookie further comprises content identification information identifying the interactive digital content of the information storage medium.

54. (Previously presented) The information storage medium of claim 52, wherein the cookie generation command program is written in a script language.

55.–56. (Canceled)

57. (Previously presented) The information storage medium of claim 52, wherein the markup document comprises content identification information identifying the interactive digital content of the information storage medium; and

wherein the cookie generation command program controls the interactive digital content reproducing apparatus to:

obtain the content identification information from the markup document; and

include the content identification information in the cookie.

58. (Previously presented) The information storage medium of claim 52, wherein the interactive digital content reproducing apparatus further comprises a decoder to decode the AV data; and

wherein the cookie generation command program controls the interactive digital content reproducing apparatus to:

- obtain a state of a system variable of the interactive digital content reproducing apparatus from the decoder; and

- include the state of the system variable in the cookie data.

59. (Previously presented) The information storage medium of claim 52, wherein the cookie generation command program controls the interactive digital content reproducing apparatus to:

- obtain data from the markup document; and

- include the data obtained from the markup document in the cookie data.

60. (Previously presented) The information storage medium of claim 52, wherein the cookie generation command program controls the interactive digital content reproducing apparatus to:

- obtain data input by a user of the interactive digital content reproducing apparatus; and

- include the data input by the user in the cookie data.

61. (Previously presented) The information storage medium of claim 52, wherein the markup document further comprises a cookie reference command program; and

wherein the cookie reference command program the interactive digital content reproducing apparatus to:

- search the data storage unit for a desired cookie; and

- extract cookie data from the desired cookie if the desired cookie is found in the search.

62. (Previously presented) The information storage medium of claim 52, wherein the markup document further comprises a cookie deletion command program; and

wherein the cookie deletion command program controls the interactive digital content reproducing apparatus to:

- search the data storage unit for a cookie to be deleted; and

- delete the cookie to be deleted if the cookie to be deleted is found in the search.

63. (Previously presented) The information storage medium of claim 52, wherein the cookie further comprises a path attribute identifying a path for which the cookie data is effective; and

wherein the cookie data comprises:

a name of the cookie data; and
a value of the cookie data.

64. (Previously presented) The information storage medium of claim 52, wherein the cookie further comprises an expires attribute defining a duration of the cookie.

65. (Previously presented) The information storage medium of claim 61, wherein the cookie further comprises a path attribute identifying a path for which the cookie data is effective; wherein the cookie data comprises:

a name of the cookie data; and
a value of the cookie data; and

wherein the cookie reference command program controls the interactive digital content reproducing apparatus to:

search the data storage unit for a cookie that has a same domain attribute as the desired cookie, a same path attribute as the desired cookie, and a same name of the cookie data as the desired cookie; and

extract a value of cookie data from any cookie having the same domain attribute as the desired cookie, the same path attribute as the desired cookie, and the same name of the cookie data as the desired cookie that is found in the search.

66. (Previously presented) The information storage medium of claim 62, wherein the cookie further comprises a path attribute identifying a path for which the cookie data is effective; wherein the cookie data comprises:

a name of the cookie data; and
a value of the cookie data; and

wherein the cookie deletion command program controls the interactive digital content reproducing apparatus to

search the data storage unit for a cookie that has a same domain attribute as the cookie to be deleted, a same path attribute as the cookie to be deleted, and a same name of the cookie data as the cookie to be deleted; and

delete any cookie having the same domain attribute as the cookie to be deleted, the same path attribute as the cookie to be deleted, and the same name of the cookie data as the cookie to be deleted that is found in the search.

67. (Previously presented) A computer-readable medium having embodied thereon a program for reproducing interactive digital content in an interactive digital content reproducing apparatus, the interactive digital content reproducing apparatus comprising a data storage unit, the data storage unit comprising a non-volatile data storage portion, the program comprising:

retrieving interactive digital content comprising:

audio/video (AV) data; and

a markup document supporting an interactive function for reproducing the AV data and comprising a cookie generation command program;

parsing the markup document to verify a syntax of the markup document;

extracting the cookie generation command program from the markup document by interpreting a structure of the markup document;

generating a cookie using the cookie generation command program, the cookie comprising:

cookie data to be used by the interactive digital content reproducing apparatus in a subsequent interactive digital content reproducing operation performed in the interactive digital content reproducing apparatus; and

a domain attribute identifying the interactive digital content reproducing apparatus as a domain; and

storing the cookie in the non-volatile data storage portion of the data storage unit.

68. (Previously presented) The interactive digital content reproducing apparatus of claim 1, wherein the retrieving unit comprises a network access unit to receive the interactive digital content through a network.

69. (Currently amended) The interactive digital content reproducing method-apparatus of claim 8, wherein the system variable is a play state system variable of the interactive digital content reproducing apparatus.

70. (Currently amended) The interactive digital content reproducing method-apparatus of claim 8, wherein the system variable is a parental level system variable of the interactive digital content reproducing apparatus.

71. (New) The interactive digital content reproducing apparatus of claim 1, wherein the parser comprises a cascading style sheet (CSS) parser to verify whether or not the markup document complies with display rules of colors and fonts.

72. (New) The interactive digital content reproducing apparatus of claim 1, wherein the cookie generation command program comprises a setCookie function.

73. (New) An interactive digital content reproducing apparatus to reproduce interactive digital content, the interactive digital content reproducing apparatus comprising:

- a data storage unit, the data storage unit comprising a non-volatile data storage portion;
 - a retrieving unit to retrieve interactive digital content, the interactive digital content comprising:
 - audio/video (AV) data; and
 - a markup document comprising a cookie generation command program and supporting an interactive function for reproducing the AV data;
 - a decoder to decode the AV data; and
 - a presentation engine to:
 - extract the cookie generation command program from the markup document;
 - obtain a state of a parental level system variable of the interactive digital content reproducing apparatus from the decoder;
 - execute the cookie generation command program to generate a cookie using the state of the parental level system variable; and
 - store the cookie in the non-volatile data storage portion of the data storage unit;
- wherein the cookie comprises:

cookie data, comprising the state of the parental level system variable, to be used by the interactive digital content reproducing apparatus in a subsequent interactive digital content reproducing operation performed in the interactive digital content reproducing apparatus; and

a domain attribute identifying the interactive digital content reproducing apparatus as a domain.

74. (New) The interactive digital content reproducing apparatus of claim 73, wherein the presentation engine comprises:

a HyperText Markup Language (HTML) parser to verify whether or not the document complies with an HTML syntax; and

a cascading style sheet (CSS) parser to verify whether or not the markup document complies with display rules of colors and fonts.